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(74) Agents: TRECARTIN, Richard, F. et al.; Flehr Hohbach Test Albritton & Herbert LLP, Suite 3400, 4 Embarcadero Center, San Francisco, CA 94111-4187 (US). (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

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(54) Title: BACILLUS CIRCULANS XYLANASE MUTANTS

(57) Abstract: The invention relates to novel xylanase activity (XA) proteins and nucleic acids. The invention further relates to the use of the (XA) proteins in the process of pulp bleaching.

INTERNATIONAL SEARCH REPORT

Intern nal Application No PCT/US 00/13172

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N15/56 C12N9/24 C12N1/21 D21C9/10 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) C12N D21C Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ, BIOSIS C. DOCUMENTS CONSIDERED TO BE RELEVANT Category ° Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. WAKARCHUK W W ET AL: "THERMOSTABILIZATION X 1,2,6,7, OF THE BACILLUS CIRCULANS XYLANASE BY THE 12,16-21 INTRODUCTION OF DISULFIDE BONDS" PROTEIN ENGINEERING, GB, OXFORD UNIVERSITY PRESS, SURREY, vol. 7, no. 11, 1994, pages 1379-1386, XP002072553 ISSN: 0269-2139 cited in the application the whole document EP 0 828 002 A (CANADA NAT RES COUNCIL) X 1,2 11 March 1998 (1998-03-11) cited in the application abstract examples 1-15 Further documents are listed in the continuation of box C. Patent family members are listed in annex. Special categories of cited documents: "T" later document published after the international filing date or priority date and not in conflict with the application but *A* document defining the general state of the art which is not cited to understand the principle or theory underlying the considered to be of particular relevance invention *E* earlier document but published on or after the international "X" document of particular relevance; the claimed invention filing date cannot be considered novel or cannot be considered to "L" document which may throw doubts on priority claim(s) or involve an inventive step when the document is taken alone which is cited to establish the publication date of another "Y" document of particular relevance; the claimed invention citation or other special reason (as specified) cannot be considered to involve an inventive step when the *O* document referring to an oral disclosure, use, exhibition or document is combined with one or more other such docuother means ments, such combination being obvious to a person skilled in the art. *P* document published prior to the international filing date but later than the priority date claimed *&* document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 13 December 2000 19/12/2000 Name and mailing address of the ISA Authorized officer European Palent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Lejeune, R Fax: (+31~70) 340-3016

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